WHAT IS CLAIMED IS:

1. A flatbed scanner, which may be used in combination with an automatic document feeder having a scan function to simultaneously scan a front side image and a back side image of a document, the flatbed scanner comprising:

a bottom image-reading module for reading the front side image to obtain an analog front-side signal;

a bottom motor for moving the bottom image-reading module;

a bottom circuit for controlling the bottom image-reading module and converting the analog front-side signal into a digital front-side signal; and

a bottom memory connected to the bottom circuit, wherein the bottom circuit comprises a digital signal receiver for receiving a digital back-side signal, which corresponds to the back side image, from the automatic document feeder.

2. The flatbed scanner according to claim 1, wherein the bottom circuit further comprises:

a clock generator for generating a bottom clock signal to control the bottom image-reading module; and

an analog-to-digital converter and an amplifier for converting and amplifying the analog front-side signal into the digital front-side signal, respectively.

3. The flatbed scanner according to claim 1, wherein the bottom clock signal is further transferred to the automatic document feeder.

4. The flatbed scanner according to claim 1, further comprising a keyboard through which a user may control operations of the flatbed scanner.

5. The flatbed scanner according to claim 1, further comprising a monitor for displaying a state of the flatbed scanner.

6. The flatbed scanner according to claim 1, wherein the bottom image-reading module is a CCD module or a CIS module.

7. The flatbed scanner according to claim 1, wherein the bottom circuit is an application-specific integrated circuit (ASIC).

8. An automatic document feeder, which may be used in combination with a flatbed scanner to simultaneously scan a back side image and a front side image of a document, the automatic document feeder comprising:

a top image-reading module for reading the back side image to obtain an analog back-side signal;

a sheet-feeding mechanism for feeding the document; and

a top circuit for receiving the analog back-side signal and converting the analog back-side signal into a digital back-side signal for output to the flatbed scanner.

9. The automatic document feeder according to claim 8, wherein the top image-reading module is a CCD module or a CIS module.

10. The automatic document feeder according to claim 8, wherein the top circuit comprises:

an analog-to-digital converter for converting the analog back-side signal into the digital back-side signal.

11. The automatic document feeder according to claim 8, further comprising a top memory connected to the top circuit, wherein the top circuit comprises an

analog-to-digital converter and an amplifier for converting and amplifying the analog back-side signal into the digital back-side signal, respectively.

12. The automatic document feeder according to claim 8, wherein the top circuit comprises:

a clock generator for generating a top clock signal to control the top image-reading module; and

an analog-to-digital converter for converting the analog back-side signal into the digital back-side signal.

13. The automatic document feeder according to claim 8, wherein the top circuit comprises:

a clock generator for generating a top clock signal to control the top image-reading module; and

an analog-to-digital converter and an amplifier for converting and amplifying the analog back-side signal into the digital back-side signal, respectively.

14. A duplex scanner for simultaneously scanning a front side image and a back side image of a document, the duplex scanner comprising:

an automatic document feeder, comprising :

a top image-reading module for reading the back side image to obtain an analog back-side signal;

a sheet-feeding mechanism for feeding the document; and

a top circuit for controlling the top image-reading module and converting the analog back-side signal into a digital back-side signal for output; and a flatbed scanner, comprising:

a bottom image-reading module for reading the front side image to obtain an analog front-side signal;

a bottom motor for moving the bottom image-reading module;

a bottom circuit for receiving the analog front-side signal and converting the analog front-side signal into a digital front-side signal; and

a bottom memory connected to the bottom circuit, wherein the bottom circuit comprises a digital signal receiver for receiving the digital back-side signal, which corresponds to the back side image, from the automatic document feeder.

15. The duplex scanner according to claim 14, wherein the top circuit comprises an analog-to-digital converter for converting the analog back-side signal into the digital back-side signal, and the bottom circuit further comprises:

a clock generator for generating a bottom clock signal to control the bottom image-reading module and the top image-reading module; and

an analog-to-digital converter and an amplifier for converting and amplifying the analog front-side signal into the digital front-side signal, respectively, and the amplifier further amplifying the digital back-side signal.

16. The duplex scanner according to claim 14, wherein:

the automatic document feeder further comprises a top memory connected to the top circuit;

the top circuit comprises an analog-to-digital converter and an amplifier for converting and amplifying the analog back-side signal into the digital back-side signal, respectively; and the bottom circuit comprises:

a clock generator for generating a bottom clock signal to control the bottom image-reading module and the top image-reading module; and

an analog-to-digital converter and an amplifier for converting and amplifying the analog front-side signal into the digital front-side signal, respectively.

17. The duplex scanner according to claim 14, wherein the top circuit comprises:

an analog-to-digital converter and an amplifier for converting and amplifying the analog back-side signal into the digital back-side signal, respectively; and

a clock generator for generating a top clock signal to control the top image-reading module; and

the bottom circuit comprises:

a clock generator for generating a bottom clock signal to control the bottom image-reading module; and

an analog-to-digital converter and an amplifier for converting and amplifying the analog front-side signal into the digital front-side signal, respectively.

18. The duplex scanner according to claim 17, wherein the automatic document feeder further comprises a top memory connected to the top circuit.

19. The duplex scanner according to claim 14, wherein each of the top image-reading modules is a CCD module or a CIS module.

20. The duplex scanner according to claim 14, wherein each of the bottom image-reading modules is a CCD module or a CIS module.